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August 5, 1999

"Express Mail" mailing label No. FM101562858US

Date of Deposit: August 5, 1999

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Name: John Ellison

Signature: John Ellison

via Express Mail

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Re: New U.S. Patent Application
Title: COMPOSITE TEXTILE MATERIAL FOR PROTECTING
THE HUMAN BODY AGAINST HEAT
Inventor: Philippe Boye
Our File: 10350/168

Dear Sir:

Pursuant to 35 U.S.C. § 371 and 37 C.F.R. § 1.495, enclosed please find an application for patent in the name of Philippe Boye, entitled "COMPOSITE TEXTILE MATERIAL FOR PROTECTING THE HUMAN BODY AGAINST HEAT" for entering the national stage in the United States of America, comprising the following:

1. a copy of PCT Application No. PCT/FR98/00197 as published under WO 98/34505 including PCT Application cover sheet (1 sheet), specification (11 sheets), claims (8), and drawings (2 sheets);
2. a copy of the International Preliminary Examination Report (4 sheets) in the French language;
3. an unexecuted combined Declaration and Power of Attorney for Patent; and

Honorable Commissioner of Patents
and Trademarks

-2-


August 5, 1999

4. a check in the amount of \$840.00 to cover the basic national fee pursuant to 37 C.F.R. § 1.492(a)(5). The search report was prepared by the EPO.

Please charge any outstanding amount or credit any overpayment of the fees required for filing this Application to Deposit Account No. 01-1785. A duplicate copy of this letter is enclosed. Please also acknowledge receipt of the enclosed documents by stamping the enclosed postcard and returning the same to us.

Respectfully submitted,

AMSTER, ROTHSTEIN & EBENSTEIN
Attorneys for Applicant
90 Park Avenue
New York, New York 10016
(212) 697-5995

By 
John C. Garces
Registration No. 40,616

Dated: August 5, 1999

MJB/JCG/ja
Encls.

Docket No. _____

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) or Patentee(s) : Philippe Boye Group Art Unit: 5611
Serial No. or Patent No. : 09/367,019 Examiner: Not assigned
Filed or Issued : August 5, 1999
For : COMPOSITE TEXTILE MATERIAL FOR PROTECTING THE HUMAN BODY AGAINST HEAT

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CFR §1.9(f) AND §1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

☐ the owner of the small business concern identified below:☒ an official of the small business concern empowered to act on behalf of the concern identified below:NAME OF CONCERN MANUFACTURE DE VETEMENTS PAUL BOYEADDRESS OF CONCERN 16, Quai des Moulins F-34200 SETE FRANCE

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR §§ 121.3-18, and reproduced in 37 CFR § 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention entitled: Composite textile material protecting the human body against heat by inventor(s) Philippe BOYE

described in

☐ the specification filed herewith☒ application Serial No. PCT/FR98/00197, filed February 4, 1998☐ Patent No. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person,

* NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Docket No. _____

other than the inventor, who could not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Philippe ROYE

TITLE OF PERSON IF OTHER THAN OWNER General Manager

ADDRESS OF PERSON SIGNING 64, rue de la Carausane F-34200 SETE FRANCE

SIGNATURE  DATE 2/8/99

FORM: SMALL.BUS

Rev. 10/04/94

09/367019

A COMPOSITE TEXTILE MATERIAL FOR PROTECTING THE HUMAN
BODY AGAINST HEAT

The invention relates to a composite textile material for protecting the human body against heat, in particular for enabling the effectiveness of the ventilation of the surface of the human body to be increased so as to ensure comfort or indeed survival of an individual in an environment that is hot or very hot.

Human body temperature regulation in a hot environment relies essentially on lowering the temperature of the skin by conduction, convection, radiation, and evaporation of sweat, and to a lesser extent by convection and evaporation from the lungs.

When (essentially in terms of temperature and humidity) the existing climate or the micro-climate created close to the body puts a limit on the above-described exchanges to such an extent as to compromise the comfort or even the survival of the individual, there are two methods that can be used:

a) ventilation by means of air that is dry and relatively cool (as much as 4°C to 5°C lower in temperature than the skin); and

b) contact with a body having high specific heat or high latent heat of transformation, said body having previously been cooled.

The first method is particularly advantageous from three points of view: effectiveness, flexibility of use, and comfort; the second method is generally limited to cases where the environment does not enable a source of air that is dry and relatively cool to be obtained. Nevertheless, even present-day systems based on air ventilation are not entirely satisfactory, firstly because the energy budget can be mediocre in some cases: for example, there is a ratio of 1 to 10 between the useful power and the power delivered when air conditioning an individual in the cabin of a car. Furthermore, non-optimized air consumption in the use of

equipment for providing protection against chemical, biological, nuclear, or thermal attack (fireproof outfits) reduces independent working time. The risks of hyperthermia or of the appearance of liquid sweat that can give rise to lesions in the event of exposure to high temperatures make it necessary to use ventilation or air conditioning apparatuses that are relatively heavy or bulky or that limit the length of time an individual wearing such equipment can operate.

It would be advantageous to have a system enabling the efficiency of human body ventilation to be improved, in particular while maintaining specific conditions of temperature and humidity over privileged zones of the human body such as the torso, the arms, the thighs, the scalp, the back, and in any event over an area that is large enough to remove the necessary amount of power as a function of the thermal resistance of the skin, and to do so by means of individual equipment for connecting to external apparatus for ventilation or air conditioning that can be personal or collective, and that operates under moderate conditions. Such moderate conditions consist in particular in providing the individual equipment with air that is dry and cool at a low flow rate, while exhausting air that is moist and warm, with the head loss due to air flow through the individual equipment being very small (e.g. less than 800 Pa). When external conditions make it possible, the natural ventilation generated by the movement of the wearer can suffice, so that forced ventilation is not required.

According to the invention, the problem is solved by using a composite textile material to make the individual equipment, said material essentially comprising:

- an outer zone providing a leakproofing function;
- an intermediate zone enabling a flow of air to circulate; and
- an inner zone providing mass and heat transfer from the individual into the intermediate zone.

In the present patent application, the term "outer" designates an element facing either directly or indirectly the environment in which the individual is immersed, while the term "inner" designates an element facing the individual either directly (in contact with the skin) or indirectly (in contact with a garment).

To make such a composite material structure, it is advantageous to use a three-dimensional textile, either on its own or in combination with other textiles.

Three-dimensional textiles are relatively new products and they are constituted by two fabrics united by link threads. In general, the link threads of a three-dimensional textile have properties of size, toughness, or density suitable for enabling them to provide a textile material of thickness that is relatively constant for a given cloth but that can lie, for example, in the range 3 mm to 30 mm, or even more. At present, three-dimensional cloths find applications in the field of protective garments because of their antishock properties or because of the presence of a layer of air in the internal volume thereof (protection against fire).

Given their bending modulus and their density, the link threads of the three-dimensional cloth, e.g. threads made of polyamide, provide good strength against compression in the direction perpendicular to the cloth and make it possible to maintain a circulation of air within the three-dimensional cloth even at possible compression points, and to do so with low head loss. These two characteristics are specific to three-dimensional cloths and are not to be found in foams of the kind conventionally used as padding, e.g. of the polyurethane type. In addition, the link threads pick up liquid sweat and enhance evaporation thereof.

The material of the invention can thus be constituted by a simple three-dimensional cloth made up of two fabrics or cloths that are asymmetrical as to

composition, or by a "symmetrical" three-dimensional cloth associated with fabrics or cloths that provide the necessary leakproofing and transfer functions.

The leakproofing function serves mainly to limit
 5 leakage of the air flowing in the three-dimensional cloth and is provided by cloth that is optionally coated (e.g. a polyurethane-coated polyester cloth). This cloth can constitute the outer face of the three-dimensional cloth, or it can be a cloth additional to the outer face of the
 10 three-dimensional cloth. The leakproofing function must not be completely effective if the cloth is used for making a garment since the outer layer must allow adequate exchange to take place between the body and the environment so that the equipment can be worn when no air
 15 is circulating in the intermediate zone.

The transfer function is performed by an inner layer, e.g. a woven cloth or a knit, of fiber of the polyester, polyamide, or polyacetate type or a mixture thereof, that has been treated in hydrophilic manner, and
 20 that has good capacity for transferring liquid, good drying capacity, and good permeability to water vapor. The inner layer can constitute the second face of the three-dimensional cloth or it can constitute an element that is separate therefrom. Under such circumstances, it
 25 is preferable for the second face of the three-dimensional cloth to have sufficient openings to avoid slowing down heat transfer and mass transfer between the inside of the three-dimensional cloth and the material constituting the inner layer.

Such a textile material is used for example in the form of a garment covering certain portions of the body or in the form of a seat covering or a bed covering, said covering then coming into contact with an individual who may be dressed or otherwise. In both cases, air flow
 30 circulation takes place via a diffuser situated downstream from an air admission coupling, and a collector situated upstream of an exhaust coupling. The

diffuser and the collector are created in the thickness of the composite textile material by continuous stitching and by non-continuous stitching serving to channel the air flow. Similarly, by means of continuous stitching and non-continuous stitching, it is possible to create preferential paths between the diffuser and the collector for distributing air that is cool and dry so as to cause it to circulate along a preestablished path. A diffuser, a collector, and optionally preferred paths can also be created in similar manner in a seat covering or a bed covering.

The composite textile material and the products made therefrom in accordance with the present invention provide temperature regulation for the comfort or even the survival of an individual in a hot environment, and they are applicable specifically in the following circumstances:

1/ protecting an individual occupying a confined space of the cockpit type, a sleeping bag, or the like, ...

2/ wearing an outfit that slows down the natural transfer of sweat and of heat from the body to the external environment, while also reducing the ability of an individual to work or survive, where such an outfit serves to provide bullet-proofing, or protection against chemicals, heat, steam, or fire.

In addition to the novel advantages of the present invention, the use of a three-dimensional cloth in certain types of garment or protection continues to provide certain known effects that are advantageous: for bullet-proofing, the material participates in reducing the back effect and can be integrated in the protection itself as an antitrauma layer; and in thermal, steam, or fire protection, it reduces heat transfer by conduction and by convection and can also be integrated in the protection.

The invention is described below in greater detail with reference to the accompanying drawings, in which:

• Figure 1 is a section view of a first embodiment of a composite textile material;

5 • Figure 2 is a section view of a second embodiment of a composite textile material;

• Figure 3 is a section view of another way of organizing the material;

10 • Figure 4 is a section view of yet another embodiment of the textile material;

• Figure 5 is a diagrammatic view of a garment made using the composite textile material;

• Figure 6 is a detail of Figure 5 on a larger scale; and

15 • Figure 7 is a section view of one type of preferential path created in a material.

Figure 1 is a section through a textile material constituted by an outer layer 1, a space 3, and an inner layer 4. The outer layer and the inner layer are
20 interconnected by link threads 5, constituting a so-called "three-dimensional" cloth. The outer layer 1 provides a degree of leakproofing, and is constituted for example by a hydrophobic cloth of the polyester type which can be made totally leakproof if necessary by means
25 of a coating layer 2, e.g. of polyurethane. When it is necessary for leakproofing to be incomplete so as to leave the possibility of interchange under fault conditions (stoppage of the ventilation apparatus), then materials should be used that have composition or
30 structure which provides good permeability to water vapor while offering sufficient head loss between the two faces of the outer layer to limit leakage of air. The inner layer 4 is a woven cloth or a knit of hydrophilic fibers of the polyester, polyamide, or polyacetate type (or a
35 mixture of such fibers)) that has received hydrophilic treatment. This cloth or knit must present good liquid transfer properties, which implies low priming pressure,

a high rate of absorption, and a low level of saturation, and it must also have good drying properties, i.e. large surface covering and a high rate of drying, and also good permeability to water vapor.

5 In the embodiment of Figure 1, the outer zone is constituted by the layer 1 and possibly by the coating layer 2; the intermediate zone comprises the space 3 through which the link threads 5 pass; and the inner zone is constituted by the cloth 4.

10 In the example shown in Figure 2, the outer zone and the intermediate zone have the same structure as in the material of Figure 1 while the inner zone is defined by a fabric 6 of the same type as the layer 4 in Figure 1, said fabric 6 being dissociated from the three-
 15 dimensional cloth constituted by the outer fabric 1, the space 3, and an additional fabric 7, with link threads interconnecting the fabrics 1 and 7. It can then be advantageous for the fabrics 1 and 7 to be of the same kind so as to simplify manufacture of the three-
 20 dimensional cloth. Nevertheless, it is preferable for the structure of the additional fabric to be more open (openings 8) so as to avoid slowing down transfers of heat and mass.

 The textile materials shown in Figures 3 and 4
 25 correspond respectively to those of Figures 1 and 2, with the difference that the outer zone is constituted by a fabric 1a, optionally having a coating layer 2 and distinct from the fabric constituting the three-
 dimensional cloth.

30 Figure 5 is a diagram of a protective garment made using a textile material of the invention.

 By way of example, this garment 10 has a hood 11 connected to a jacket 12 having sleeves 13, and to trousers 14 having legs 15.

35 A coupling 16 for admitting air that is dry and relatively cool from an external ventilation apparatus (not shown) introduces said air into the space 3 of the

textile material via a diffusion zone 17, e.g. situated around the neckline of the garment. This diffusion zone is defined by continuous stitching 18 and by discontinuous stitching 19, the discontinuous stitching enabling diffusion to take place into all of the space 3 (symbolized by arrows). At the bottom of the jacket 12, a collector zone 20 is constituted in the same manner by continuous stitching 18 and by discontinuous stitching 19 with the flow of air that has passed through the jacket being collected and directed (see Figure 6) towards an exhaust coupling 21 connected to the ventilation apparatus.

A piece of fabric 22 can be added to the inside face of the preferred path (see Figure 7) to reduce leakage therefrom.

The hood and the legs can be fed with dry and cool air either via the jacket or via diffusion and collection zones that are connected to independent circuits. To this end, the legs can be provided with admission and exhaust couplings 16' and 21', optionally with preferred paths being created by combining continuous stitching and discontinuous stitching.

The textile fabric can also be used for making seat coverings, bunk coverings, sleeping bags, etc., by providing each of these items with respective diffusion and collection zones fitted with admission and exhaust couplings connected to ventilation apparatus.

CLAIMS

- 1/ Composite textile material for protecting the human body against heat, essential comprising an outer zone providing a leakproofing function, an intermediate zone in which a flow of air circulates, and an inner zone allowing mass and heat to be transferred into the intermediate zone, the material being characterized in that it is constituted by a three-dimensional cloth (1, 3, 4) having one fabric (1) of hydrophobic cloth constituting the outer zone, and having its other fabric (4) in the form of a woven cloth or a knit of hydrophilic fibers and constituting the inner zone, the two fabrics (1, 4) being interconnected by link threads (5) enabling the intermediate zone to exist.
- 2/ Composite textile material for protecting the human body against heat, essential comprising an outer zone providing a leakproofing function, an intermediate zone in which a flow of air circulates, and an inner zone allowing mass and heat to be transferred into the intermediate zone, the material being characterized in that it is constituted by a three-dimensional cloth (1, 3, 4) having one fabric (1) of hydrophobic cloth constituting the outer zone, and its other fabric (7) is identical or different, and by a woven cloth or knit (6) of hydrophilic fibers spaced apart from the three-dimensional cloth, the two fabrics (1, 7) being interconnected by link threads (5) enabling the intermediate zone to exist.
- 3/ A composite textile material according to claim 2, characterized in that the surface of the three-dimensional cloth (7) facing the woven cloth or knit (6) has openings.

- 4/ A textile material according to claim 1, characterized in that the fabric (1) comprises a first layer of any kind together with a contiguous hydrophobic cloth (1a).
- 5 5/ A textile material according to claim 2, characterized in that the three-dimensional cloth (1, 3, 7) is lined on one face with a hydrophobic cloth (1a) and on its other face with a woven cloth or knit (6) of hydrophilic fibers.
- 10 6/ A textile material according to claim 4 or 5, characterized in that the hydrophobic cloth (1, 1a) carries a coating layer (2).
- 15 7/ A protection element for protecting the human body, made from a composite textile material according to any one of claims 1 to 6, the element being characterized in that it is fitted with means (16) for admitting a flow of air coming from a source external to the protection
- 20 element (forced ventilation) or generated by the movements of the wearer (natural ventilation), with a diffusion zone (17) distributing the flow of air in the internal volume of the three-dimensional cloth, with a collector zone (20) for collecting the flow of air that
- 25 has circulated in the three-dimensional cloth, and with means (21) for exhausting the flow of air.
- 8/ A protection element according to claim 7, characterized in that preferential paths are created in
- 30 the internal volume of the three-dimensional cloth between the diffusion zone and the collecting zone by continuous or discontinuous stitching (18, 19).

A B S T R A C T

A COMPOSITE TEXTILE MATERIAL FOR PROTECTING THE HUMAN
BODY AGAINST HEAT

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Composite textile material for protecting the human
body against heat, essential comprising an outer zone
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15 (4) in the form of a woven cloth or a knit of hydrophilic
fibers and constituting the inner zone, the two fabrics
(1, 4) being interconnected by link threads (5) enabling
the intermediate zone to exist.

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Translation of the title and the abstract as they were when originally filed by the
35 Applicant. No account has been taken of any changes that may have been made
subsequently by the PCT Authorities acting ex officio, e.g. under PCT Rules 37.2,
38.2, and/or 48.3.

Declaration and Power of Attorney For Patent Application

Declaration Pour Demandes de Brevets Avec Pouvoirs

French Language Declaration

En tant qu' inventeur nommé ci-après, Je déclare par le présent acte que:

Mon nom, mon domicile, mon adresse postale, ma nationalité sont ceux qui figurent ci-après,

Je déclare que je crois être l'inventeur original, premier et unique (si un seul nom figure sur le présent acte) ou un des co-inventeurs, originaux et premiers (si plusieurs noms figurent sur le présent acte) du sujet revendiqué et pour lequel un brevet est demandé sur la base de l'invention intitulée:

Matériau textile composite de
protection du corps humain contre
la chaleur
dont la description
(cocher la case correspondante)

☐ est annexée au présent acte.

☒ a été déposée le 4 février 1998

Numéro de série de la demande PCT/FR98/00197

et modifiée le _____
(si approprié)

Je déclare par le présent acte avoir examiné et compris le contenu de la description identifiée ci-dessus, revendications y compris, et le cas échéant telle que modifiée par l'amendement cité plus haut.

Je reconnais le devoir de divulguer l'information qui est en rapport avec l'examen de cette demande selon Titre 37 du Code des Règlements Fédéraux §1.56(a).

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

A composite textile material for
protecting the human body against
heat
the specification of which
(check one)

☐ is attached hereto.

☒ was filed on February 4, 1998 as

Application Serial No. PCT/FR98/00197

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)

Demande(s) de brevet antérieure(s)

97/01342

(Number)

(Numéro)

FRANCE

(Country)

(Pays)

(Number)

(Numéro)

(Country)

(Pays)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

(Application No.)

(N° de demande)

(Filing Date)

(Date de dépôt)

(Application No.)

(N° de demande)

(Filing Date)

(Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

(Application No.)

(N° de demande)

(Filing Date)

(Date de dépôt)

(Application No.)

(N° de demande)

(Filing Date)

(Date de dépôt)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365 (b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, by checking the box, and have also identified below any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed

Droit de priorité non revendiqué

6/2/97

(Day/Month/Year Filed)

(Jour/Mois/Année de dépôt)

(Day/Month/Year Filed)

(Jour/Mois/Année de dépôt)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Status) (patented, pending, abandoned)

(Statut) (breveté, en cours d'examen, abandonné)

(Status) (patented, pending, abandoned)

(Statut) (breveté, en cours d'examen, abandonné)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIR: -En tant qu'inventeur, je désigne l'(les) avocat(s) et/ou l' (les) agent(s) suivant(s) pour poursuivre la procédure de cette demande et traiter toute affaire la concernant supris du Bureau des Brevets et de Marques:

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

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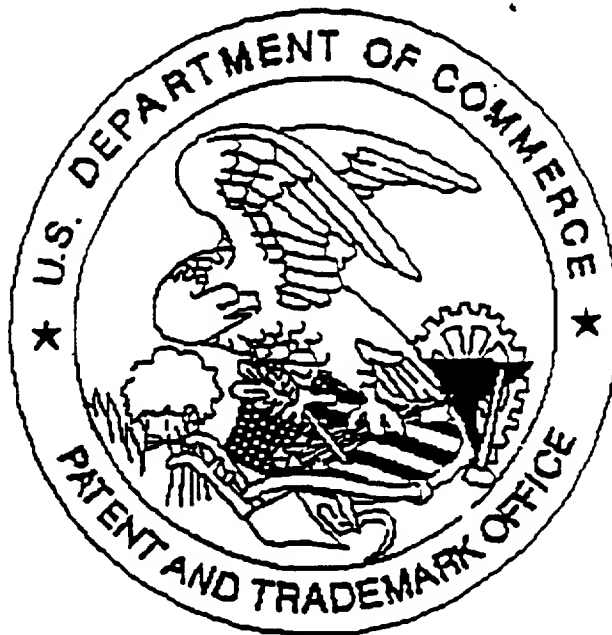
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